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Ogden, Utah

WILDFIRE PROTECTION

A GUIDE FOR HOMEOWNERS & DEVELOPERS

THE · SIERRA · FRONT ·
WILDFIRE COOPERATORS
· CA · NV ·

SIERRA FRONT WILDFIRE COOPERATORS

The *Sierra Front Wildfire Cooperators* is a group of federal, state and local agencies dedicated to reducing the threat of wildland fire to homeowners. By cooperating, the agencies have become much more effective in protecting homes.

Even so, *The Cooperators* recognize that the most effective FIRESAFE measures are those that homeowners can take themselves. As a result, they have published this guide for homeowners and developers. A video is also available on making wildland homes more safe from wildfire. Contact your local *Cooperator* for a copy of the video and additional copies of this booklet. The following agencies belong to the *Sierra Front Wildfire Cooperators.*

DIRECTORS:

Toiyabe National Forest

Lake Tahoe Basin Management Unit

Tahoe National Forest

Nevada Division of Forestry

Carson District BLM

Bakersfield District BLM

Truckee Meadows Fire Protection District

Carson City Fire Department

Tahoe-Douglas Fire Protection District

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East Fork Fire Protection District

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Writer/Editor: Mark Hummel, Toiyabe National Forest, USDA Forest Service.
Artwork: Diane Colcord, Bureau of Land Management, Nevada State Office.

INTRODUCTION

Dawn brought blue skies and another hot, dry day to the Johnson home on the eastern front of the Sierra Nevada Range. By midnight the Johnsons were watching their home burn. Johnson remembers:

> "I still can't get over the thing. Burned out our house. It was a very traumatic experience to come back and see nothing but twisted steel. Nothing. Everything you've owned....built....and planned for....was gone in a matter of minutes."

Johnson re-built his house with fire safety in mind. And yet, years later, his sense of frustration still nags:

> "You can always do Monday morning quarterbacking: I can look back and think, if I had done this, I could have saved this; if I had just done that differently, I could have saved that...."

This FIRESAFE GUIDE comes too late for Johnson's first home but there is still time to make your home or your development FIRESAFE.

FIRESAFE GUIDE

Chapter I, BUILDING YOUR HOME, describes key elements to consider in building a FIRESAFE home.

Chapter II, MODIFYING AND MAINTAINING YOUR HOME, describes practices that can be used to make your existing home FIRESAFE and keep it that way with regular maintenance.

Chapter III, DEVELOPING A FIRE PLAN, describes how to develop a plan for use in the event your home is threatened by wildfire.

Chapter IV, WHEN CAUGHT IN A WILDFIRE, describes how to decide whether to stay with your home when a fire approaches, and how to protect it should you decide to stay.

Chapter V, DEVELOPING A SUBDIVISION, contains information specifically for developers. Developers will find invaluable information in other chapters as well.

Chapter VI, FIRE RESISTANT PLANT SPECIES, lists a number of species to use in landscaping your home.

Chapter VII, AGENCIES CAN HELP, lists the local, state, and federal agencies that can help you make your house and landscape as FIRESAFE as possible.

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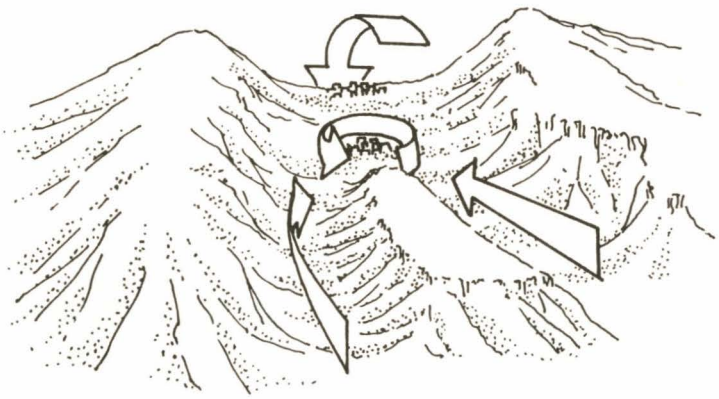
I. BUILDING YOUR HOME

When home builders, building contractors, and fire protection personnel work together closely, they can design and construct buildings that are architecturally pleasing as well as FIRESAFE. Contact officials to check state regulations and local ordinances for legal FIRESAFE requirements.

LOCATION

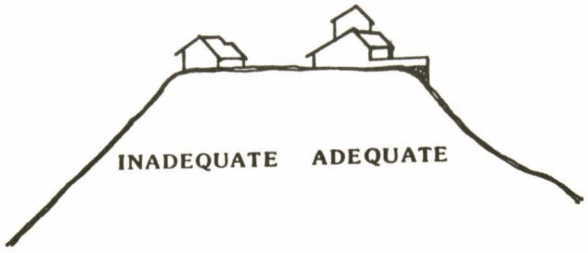
The first FIRESAFE decision when building a new home is **where to buy land**. Some areas are more FIRESAFE than others. Contact local officials to determine the extent of local fire protection.

Avoid building in a natural draw or swale. Homes located in natural chimneys, such as narrow **canyons and saddles**, are especially fire-prone because wind is funneled into them. This accelerates fire's rate of spread by forming an uphill draft.

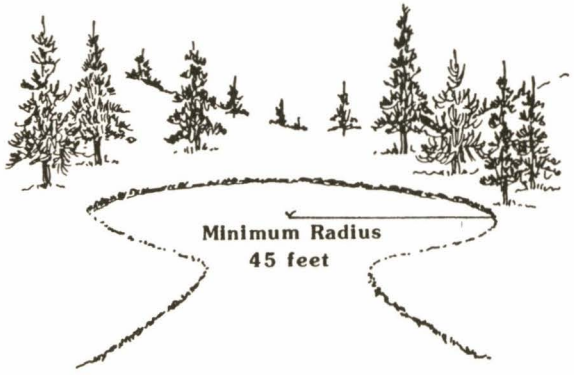


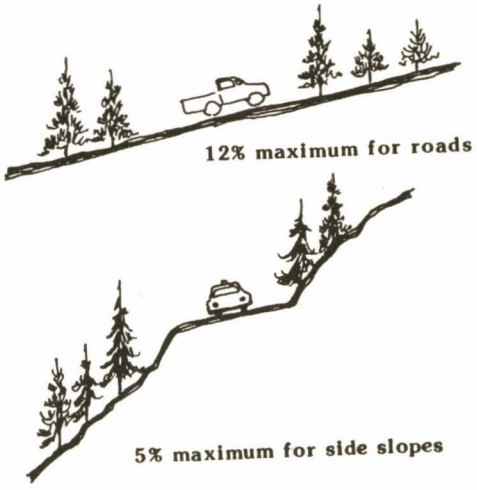
Locate your home on the most **level** portion of the **site**. Fire spreads at a remarkably faster rate as slope increases. Even minor grades, like ten percent, can accelerate the spread of wildfire.

Homes on narrow ridges without adequate **setback** are often lost because flames and convection heat hit the home directly. Homes located on the slope, especially stilt and cantilevered homes, are particularly vulnerable.



Good **access** is crucial to the ability of firefighters to protect your home in the event of wildfire. An alternate **escape route** is needed if one route is threatened by fire. Design **roads** wide enough to allow **two-way traffic**, parking lanes, and road side strips. Design **cul-de-sacs** to allow fire trucks to turn around, preferably without having to back up. Forty-five feet is a minimum radius for firefighting equipment. Design roads with a **gradient** less than twelve percent, even for short pitches. Design roads with **Side-slopes** or **out-slopes** less than five percent. If your road is to be used in winter, side slope should not exceed two percent.

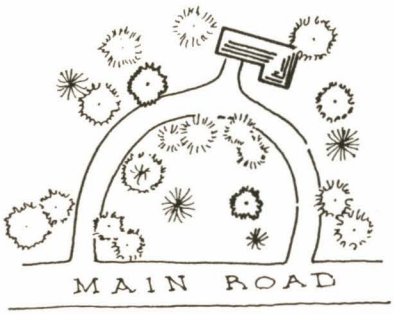




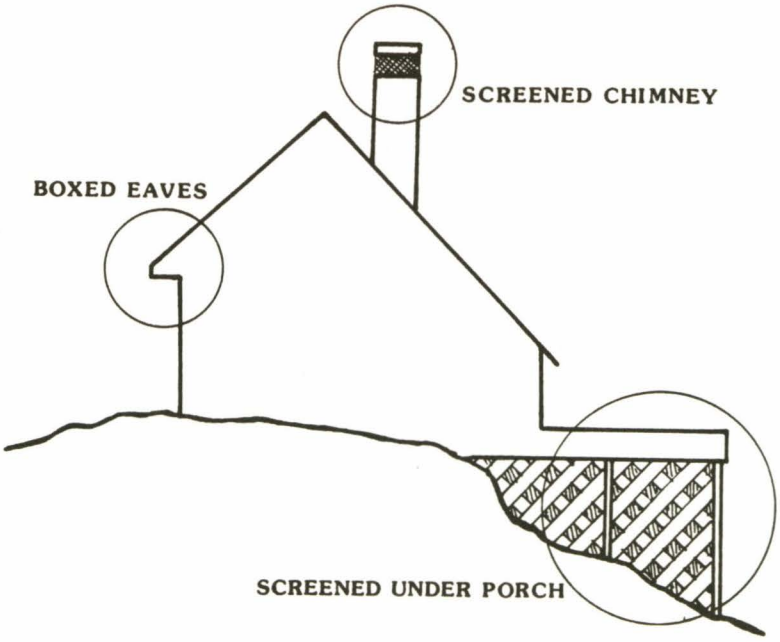
Is **water** available? If hydrants are not provided by a developer, is there an alternate water supply available for fire protection?

EXTERIOR CONSTRUCTION

Provide a **loop or U-shaped driveway** into your homesite. This provides additional access for fire fighting equipment, and an alternate escape route for you. Use **road names and numbers.** The house number should be clearly visible from the road. With only a block and lot number, firefighters may waste valuable time trying to find you.



Reduce **overhangs** or box **eaves** to protect the house from ignition and heat or flame entrapment. **Under-eave vents** should be located near the roofline rather than near the wall.



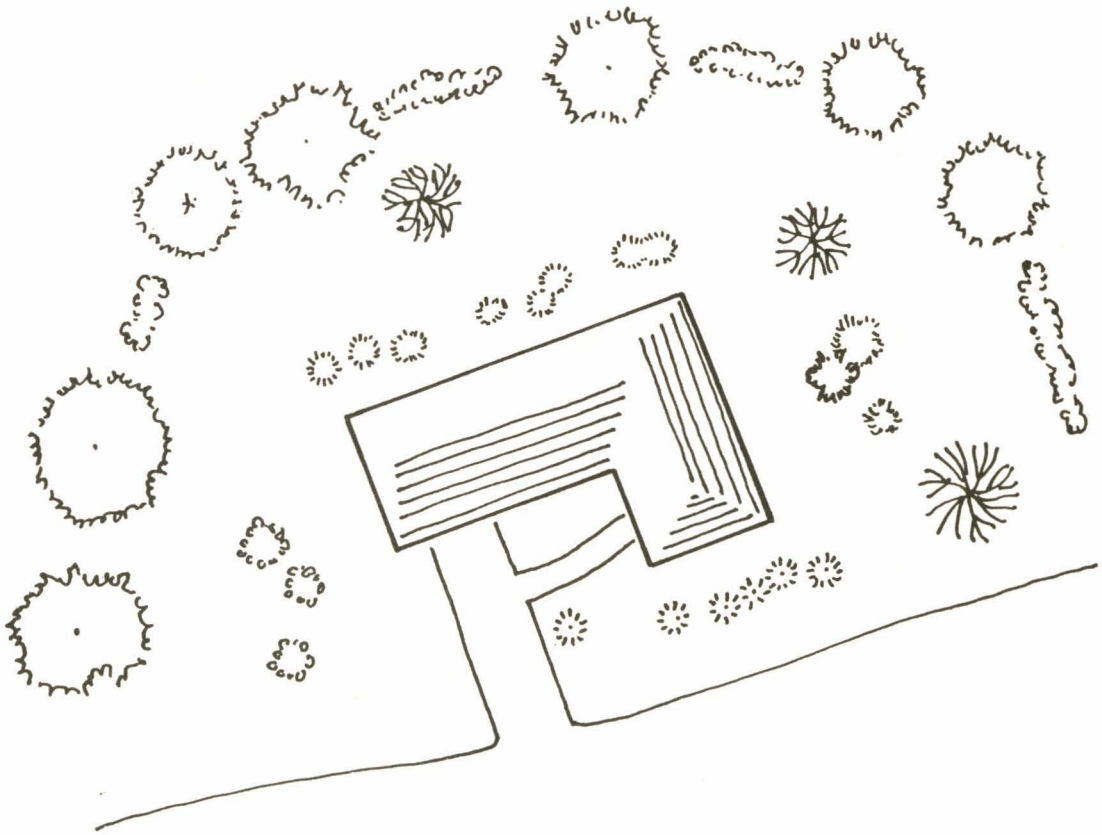
Orient exterior **attic** and **under-floor vents** away from possible fire corridors and cover them with wire screen, not to exceed 1/2 inch mesh. Screen **chimney** or **stovepipe**. Screen unenclosed, **under-floor areas**.

The wood shingle roof is the single most important factor in home losses during wildland fires. Avoid using wooden shakes and shingles. Use **exterior materials** such as stucco, metal siding, brick, concrete block, rock, and other fire-resistant materials. Install only thick, tempered safety glass in picture **windows** and sliding **glass doors**.

Provide protective **shutters**, fire resistant **drapes**, or other protective measures for large windows to protect interiors from radiant heat. Provide **smoke detectors** and portable **fire extinguishers**.

LANDSCAPING

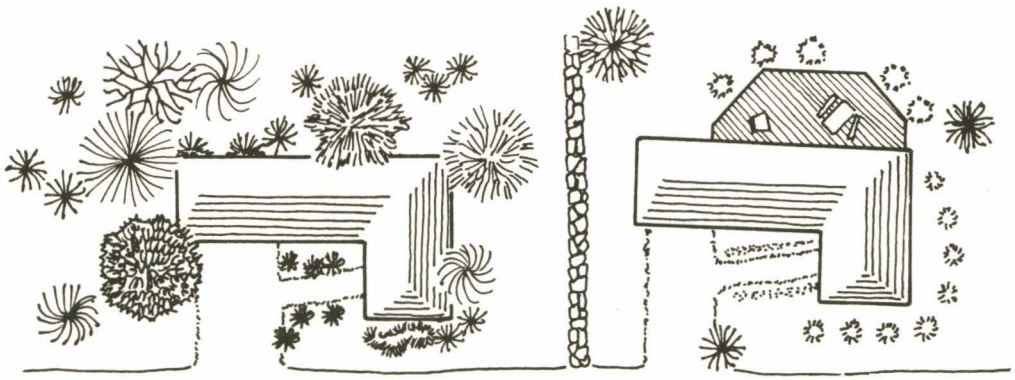
Remove flammable **fuels** from around the structure to reduce exposure to flame and radiant heat. Maintain a **fire break** of at least thirty feet around all structures, or more where fuels are closely spaced.



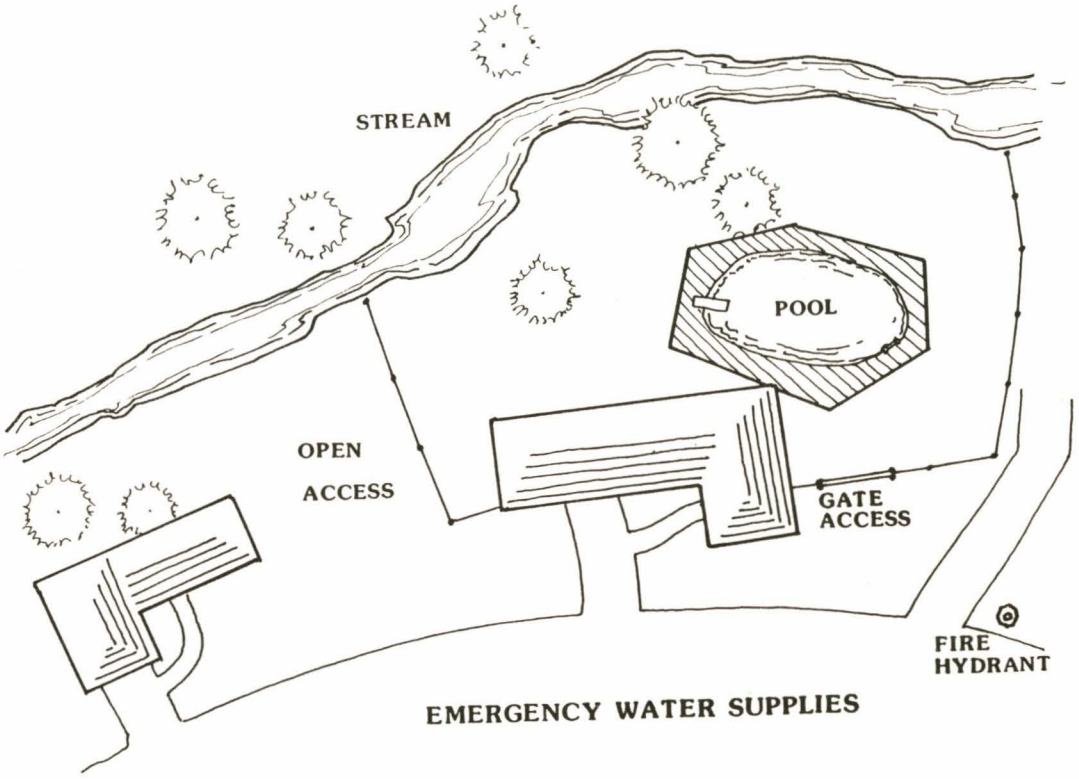
This break need not be bare ground, but can include a lawn of green grass, ornamental shrubbery, or individual trees pruned so limbs do not touch the ground. These plants should not allow fire to move from natural growth to structures. **Prune** all **branches** around your residence to a height of eight to ten feet. Remove all dead limbs and accumulations of needles and debris. This greatly reduces the probability of fires reaching the crowns of trees, and also can add to the visual quality of your landscape.

Do not allow any portion of any vegetation to extend to within 15 feet of the outlet of a **stovepipe** or **chimney**. Keep all trees adjacent to any building or structure free of dead or dying wood and moss.

Many fires are ignited by the **electrical lines** leading from the main power line to the house. Install these lines underground whenever possible. If this cannot be done, trim all limbs that come in contact with the wires. **Stone walls** can act as heat shields and deflect flames. Use swimming pools, decks, and patios to create a **safety zone**.



Water systems might include filled cisterns ready for use by fire services only; standpipes or fire hydrants within a development; or wells with high volume pumps. Develop **water access sites** and post signs so fire trucks can get within sixteen feet of creeks, rivers, lakes, ponds, or swimming pools.



EMERGENCY WATER SUPPLIES

Provide single family homes with one-inch diameter **supply mains** as a minimum. Plumb garden hose outlets on the exterior of the building and locate standpipes at least fifty feet from the building. This will permit hose-stream protection for all sides of the building. Provide an **operating pressure** of a least fifty pounds-per-square-inch. Protect exterior outlets from freezing. If you plan on a **well for water supply**, service the pump with an electric supply that is separate from the house. This will assure a water supply even if the house is burning. Consider the addition of an auxillary gasoline-driven engine to power the pump in remote areas where the main electric power line could be involved in a wildfire.

Once your house has been constructed, consider the recommendations in the next chapter to maintain a FIRESAFE home.

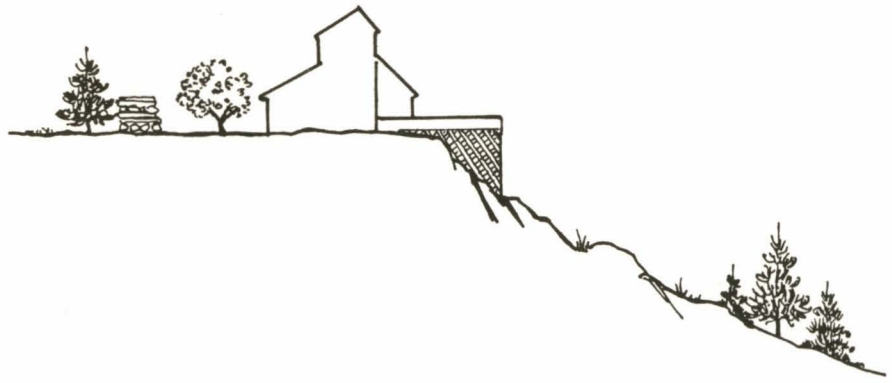
II. MODIFYING AND MAINTAINING YOUR HOME

Contact officials to check state regulations and local ordinances for legal FIRESAFE requirements.

LANDSCAPE MAINTENANCE

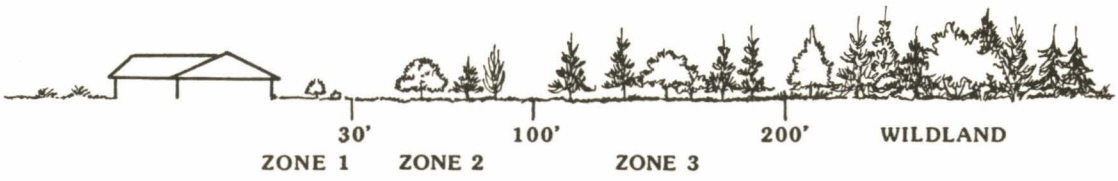
When wildland firefighters speak of **fuels** they are referring to any materials that could burn and consequently spread wildland fire. This includes trees, sagebrush, wood piles, wooden shingles, and anything else that can catch fire. The FIRE SAFETY goal of landscape maintenance is to reduce the amount of fuel around a house. The objective is to break the ladder of fuels that would allow the fire to climb from the wildland to the structure.

Remove limbs within 15 feet of the chimney. Cut away dead branches and limbs that overhange the roof. **Remove all loose flammables** such as dry leaves, needles, paper, bird nests from roofs, eaves, and rain gutters at the beginning of each fire season and any time they accumulate to a depth of one inch or more.



Keep the area under house free from combustible material of any kind. Stack wood piles away from buildings, fences, and other combustible materials. Enclose porches and overhangs.

The **green zone within thirty feet** of the home is most critical for fire and watershed safety. Maintain nonflammable landscaping such as lawns, border plantings, flower gardens and vegetable beds. Structures such as pools concrete decks, and recreation areas help to reduce fire hazard close to the home. In the **thirty to one-hundred foot green zone** around the home, remove dead woody plants. Occasionally prune trees and shrubs and eradicate weedy species. **Beyond one-hundred feet**, reduce the amount of vegetation and thin out the most flammable species. Remove older vegetation while favoring younger plants to reduce the possibility of major wildfires.



If the main **powerline** to your house is not buried underground, trim all limbs that come in contact with the wires. Vegetation should not be allowed to grow up under lines to a height where they will contact the wires. Inform the power company providing electric service of any hazard trees or limbs which might contact their lines.

INTERIOR RETROFITTING

If some form of fire protection service is providing protection to your area, request that this agency inspect your house to identify problems and make recommendations. Install in each dwelling unit at least one **smoke detector** and at least one **fire extiguisher.**

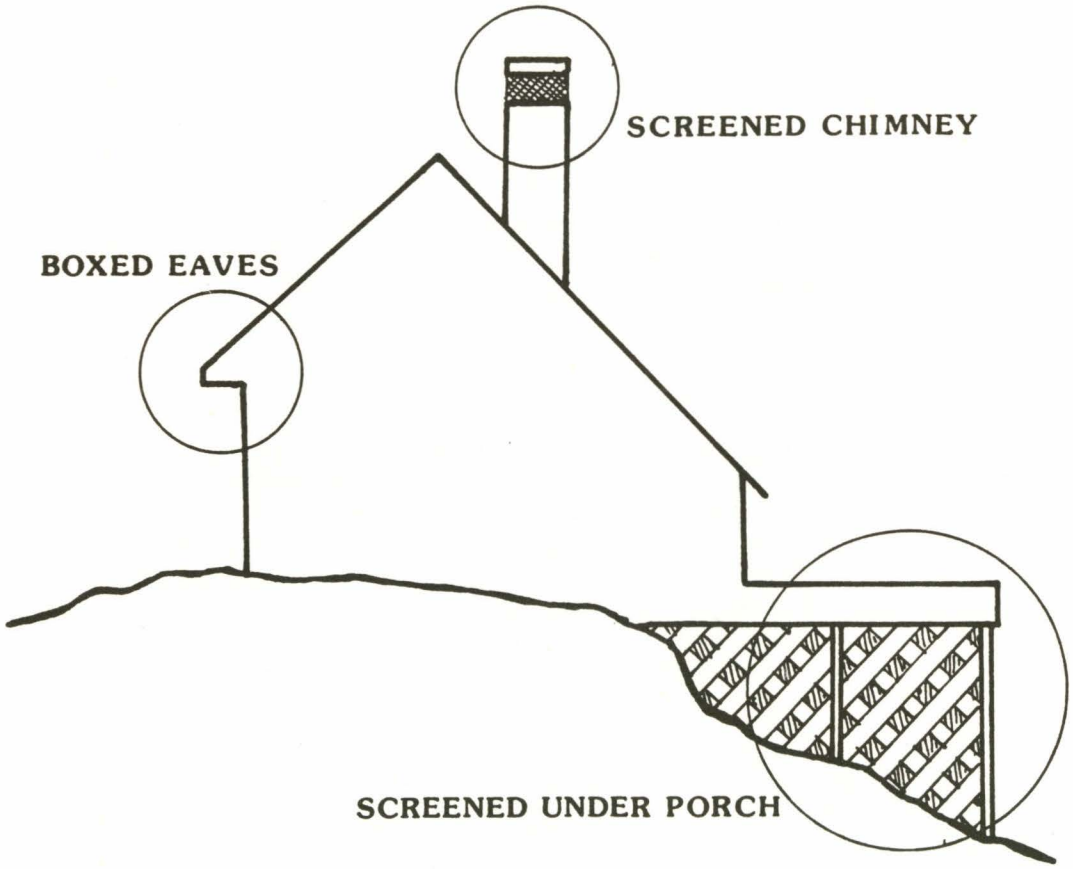
Install in each dwelling unit at least two door **exits** by means of which ground level may be reached. Install in each room, especially each bedroom, two means of exit; one of which must be to the outside of the building.

Minimize the size and number of **windows** on the side of the house facing the normal fire carrying wind or the downhill side or both. Orient windows so that they do not face vegetative fuels within one-hundred feet, unless the openings are provided with fireproof shutters. Use extra-strength glass (thick, safety, tempered; double-paned; or both). Protect windows and sliding glass doors with non-flammable shutters, balconies or decks, and fire-resistant drapes.

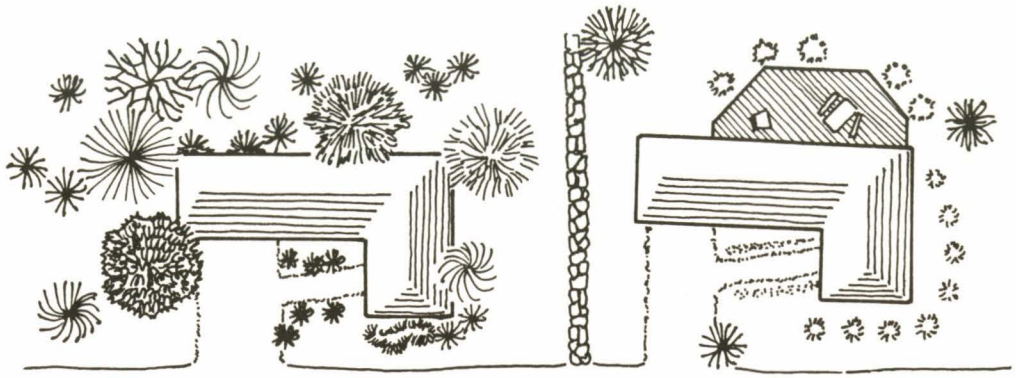
EXTERIOR RETROFITTING

Install a class A, **fire-resistant roof**, such as tile, stucco, or other fire-resistant siding of at least 1 hour fire-resistive rating. Build **exterior walls** of such materials as to provide fire resistance. Extend the fire-resistant material of all exterior walls from ground level to roof line.

Cover exterior attic and underfloor **vents** with wire screen, not to exceed 1/2 inch mesh. **Screen the chimney** outlet to prevent sparks from igniting the roof or brush. For structures supported wholey or in part on stilts, **encase all underfloor areas** to the groundline with materials meeting the standards for exterior vertical walls.



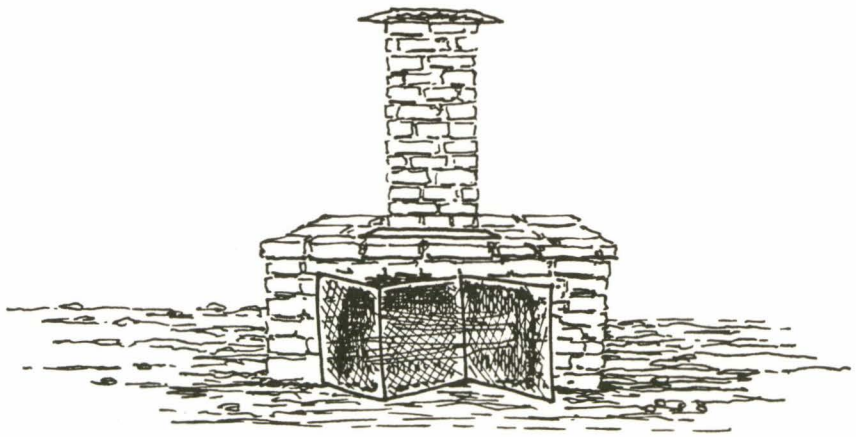
Use stone walls as **heat shields** to deflect the flames. Use swimming pools, decks, and patios to create a **setback safety zone.**



Theoretically, **sprinklers** can prevent a wood shake roof from catching fire. Realistically, they offer only a false sense of security. Large volumes of water would be required at a time when loss of water pressure can be expected.

GOOD HABITS

Use of **outdoor cooking** equipment has started a number of serious fires. Equip permanently installed fireplaces with a screen over the outlet and a method of controlling indraft. Clear at least five feet of flammable material around fireplaces and trim overhanging limbs to within 15 feet. Portable barbecues present a special problem; use extra caution in disposing of briquets remaining after use. Place them in a closed metal container located in a safe place or extinguish them in a bucket of water.



Incinerators or burning barrels used to dispose of burnable household debris are illegal in many areas. If they are allowed, a permit is generally required for their use. Check your local fire protection agency for laws and ordinances.

Store **flammable materials** such as firewood, lumber, and hay either in a properly designed and constructed FIRESAFE building, or separated from any buildings by the same minimum distance required for building spacing.

Encourage neighbors to follow these guidelines. Remember; their FIRE SAFETY improves **yours.**

IV. DEVELOPING A FIRE PLAN

Ask your fire personnel for advice in developing your own fire plan, and talk with your neighbors about resources you could share in an emergency.

Planning should include all those actions to be carried out, and by whom, when dangerous fire weather exists, as well as those tasks to be done when the structure is actually threatened by wildfire. Equipment must be strategically placed and its proper use for firefighting learned. Planning should include alternatives so that panic or ineffective actions will not occur in case the primary plan does not work.

ELEMENTS OF PLAN

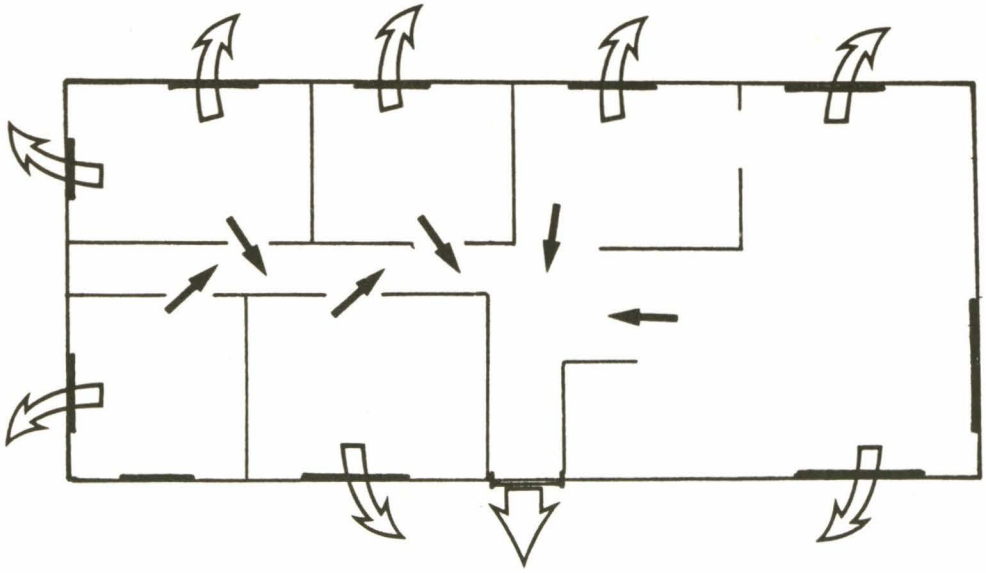
____ Normal and alternate escape routes in case evacuation becomes necessary.

____ Locations of and routes to large areas with little or no fuels where family members can ride out the fire if evacuation is not possible.

____ Normal and alternate methods of communication with other family members.

____ When to evacuate. Evacuation depends on so many variables that it can only be planned on an individual property basis and with contingent alternatives.

____ Who is to do what when an emergency is likely, and when one exists.



PROVIDE EQUIPMENT

_____ Hoses preconnected to all faucets; hoses should be 5/8 inch or larger inside diameter, and 100 feet long.

_____ One or more long-handle, round-point shovel.

_____ One ladder long enough to reach the roof of the building easily.

_____ One rake (leaf, garden, asphalt, or special firefighting).

_____ One or more 5-pound multipurpose fire extinguisher.

_____ Axe.

_____ Hoe (heavy duty or special firefighting).

_____ One or more fire buckets.

_____ Backpack water pump.

_____ Portable gasoline-powered water pump.

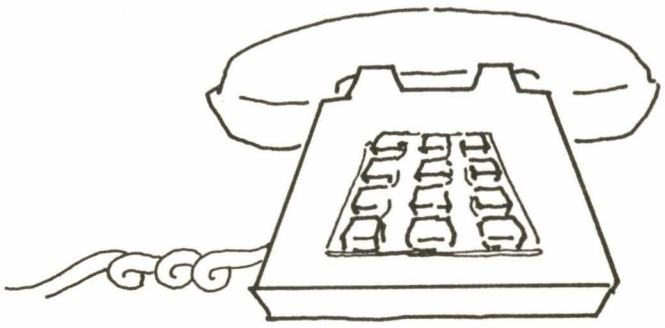
_____ Protective clothing for anyone who may not evacuate before the arrival of a fire. This includes boots, long trousers, long-sleeved shirt or jacket, helmet or other head covering, gloves, and goggles. Cotton clothing is a "must;" synthetics can melt onto your skin.

V. WHEN CAUGHT IN WILDFIRE

If your home is threatened by wildfire, **call the fire department immediately.** Do not assume that someone else has already called. Find the exact location of the fire, speak slowly and clearly, and answer any questions the operator may ask.

_____

EMERGENCY PHONE NUMBER



BEFORE THE FIRE APPROACHES YOUR HOUSE

1. If you plan to stay, evacuate your pets and all family members who are not essential to protecting the home.

2. Dress properly to survive the fire. Wear cotton fabrics, not synthetics. Wear long pants and boots and carry with you for protection a long-sleeved shirt or jacket, gloves, a handkerchief to shield your face, and goggles.

3. Remove combustible items from around the house. This includes lawn and poolside furniture, umbrellas, and tarp coverings. If they catch fire, the added heat could ignite your house.

4. Close outside attic, eave, and basement vents. This will eliminate the possibility of sparks blowing into hidden areas within the house. Close window shutters.

5. Shut off any natural gas, LPG, or fuel oil supplies at a point as far from the structure as the plumbing will allow.

6. Test the water system including any pumps on the property, each valve, and each hose.

7. Connect all garden hoses and leave them coiled loosely in a convenient location.

8. Place large plastic trash cans or buckets around the outside of the house and fill them with water. Soak burlap sacks, small rugs, large rags. They can be helpful in beating out burning embers or small fires. Inside the house, fill bathtubs, sinks, and other containers with water. Toilet tanks and water heaters are important water reservoirs.

9. Shut off all water except firefighting valves. The house should be plumbed so that closing one valve will accomplish this. If it is not, close each interior faucet and valve.

10. Locate garden hoses so they will reach any place on the house. Use a spray-gun type nozzle, adjusted to spray.

11. If you have portable gasoline-powered pumps to take water from a swimming pool or tank, make sure they are operating and in place.

12. Place a ladder against the house opposite the side of the approaching fire. If you have a combustible roof, wet it down only when fire is imminent. Premature use of water will only waste a resource that could save your home once the fire arrives.

13. Back your car into the garage and roll up the car windows. Disconnect the automatic garage door opener so that, if the power fails, you can still open the door by hand. Close all garage doors.

14. Place valuable papers and mementos inside the car in the garage for quick departure. Any pets still with you should also be put in the car.

15. Close house to prevent sparks from blowing inside. Close all doors inside the house to prevent draft. Open the damper on your fireplace to help stabilize outside-inside pressure, but close the fireplace screen so sparks will not ignite the room. Turn on a light in each room to make the house more visible in heavy smoke.

16. Turn off pilot lights to minimize the possibility of igniting a ruptured fuel line.

17. If you have time, take down flammable drapes and curtains. Close all venetian blinds or noncombustible window coverings to reduce the amount of heat radiating into your home. This gives added safety in case the windows give way because of heat or wind. If coverings are not available, cover windows with aluminum foil or other heat reflective material.

IF YOU PLAN TO LEAVE

1. Leave the lights on in your home. If the electrical power does not fail, such lights will call attention to out-of-the-way homes during hours of darkness.

2. Leave doors and windows closed but unlocked. It may be necessary for firemen to gain quick entry into your home to fight fire. Don't worry about looting. The entire area will be isolated and guarded by the Police Department.

3. If it becomes necessary to drive through fire, roll up the car windows, turn on the headlights, and drive slowly. A motor vehicle can be driven through considerable fire provided the driver remains calm. Look out for other vehicles and pedestrians when driving through smoke-filled streets.

IF YOU PLAN TO STAY

As the firefront approaches, go inside the house. Although the building may eventually be destroyed by fire, the greatest mass of heat and fire may have swept by outside before it becomes untenable inside and it may then be possible to leave the building safely. Stay calm.

AFTER THE FIRE PASSES

After the fire passes, check the roof immediately. Extinguish any sparks or embers. Check inside the attic for hidden burning sparks. If you have a fire, get your neighbors to help fight it. The water in your pool and the water in your garbage cans, sinks, and toilet tanks will come in handy now. For several hours after the fire, re-check for smoke and sparks throughout the house.

V. DEVELOPING A SUBDIVISION

Developers can contact fire agencies early in the planning phase of any development. Discussion at this stage can help planners design FIRE SAFETY into a neighborhood at little additional cost. Benefits include public safety, FIRE SAFETY as a sales feature, and liability protection.

LOCATION

Locate the development on a flat area. **Avoid** building in a **natural draw or swale.** Homes located in natural chimneys, such as narrow canyons and saddles, are especially fire-prone because winds are funneled into them. This accelerates fire's rate of spread by forming an uphill draft. Also **avoid** building on **the toe** of the Eastern Sierra. Intense, local downslope winds make this area especially vulnerable, fueling fires' spread quickly and unpredictably.

FIRE BREAKS

When wildland firefighters speak of fuels they are referring to any materials that could burn and consequently spread wildland fire. This includes trees, chapparal, wood piles, wooden shingles, and anything else that can catch fire. The FIRESAFETY goal of a green zone is to reduce the amount of fuel immediately surrounding the development and surrounding each house. The objective is to break the ladder of fuels that would allow wildfire to climb from wildland to neighborhood.

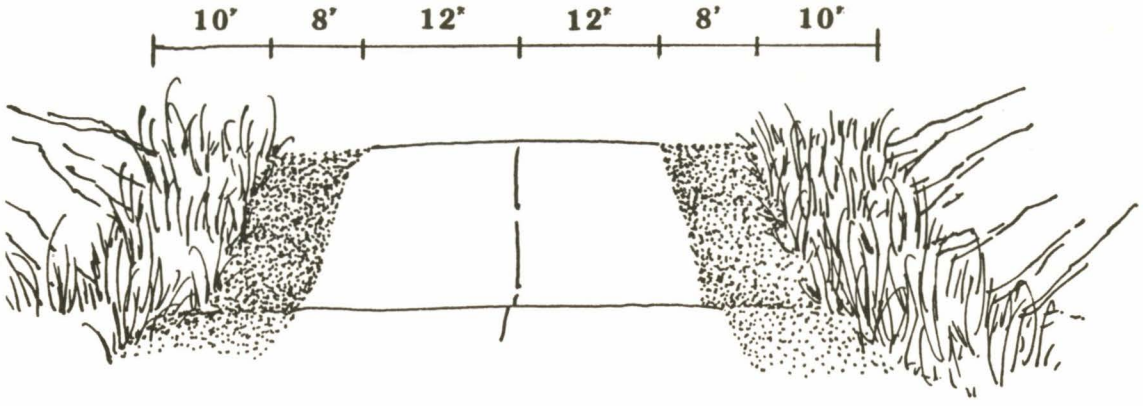
A fuel break **around a development** need not be a bulldozed trail of bare soil. Remove all dead and downed material in a band 200 to 300 feet wide around the development in forested areas. Thin the remaining vegetation so that fire cannot spread from tree to tree or shrub to shrub. Build the fuel break on a flat area. If it must be built on a slope, make the break wider as the steepness increases. Fire spreads faster on slopes.

Design public use areas such as parks, recreation sites, and picnic areas so that fires cannot escape to the rest of the development or to the surrounding wildlands. Provide approved fire pits, remove dead trees, thin low vegetation.

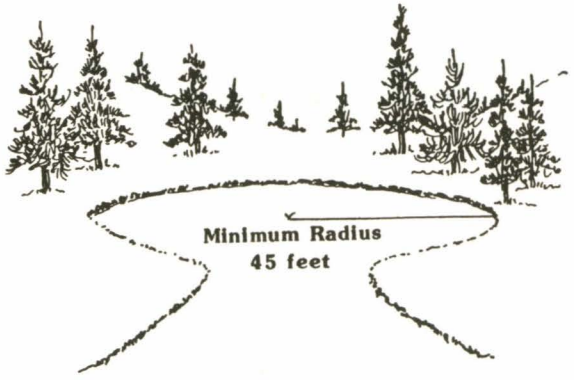
Maintain fire breaks of **at least thirty feet around all structures**. For additional information on firebreaks for individual units, see Chapter II, MODIFYING AND MAINTAINING YOUR HOME.

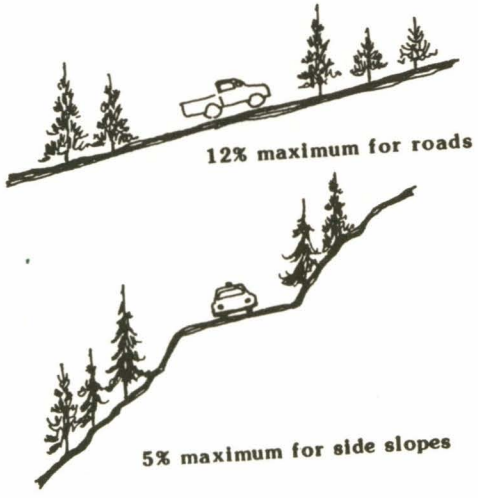
ROADS

Provide at least **two routes of access** to the development for firefighting equipment or evacuation should one of the routes be blocked by fire. Design each lot to abut onto a public road. Provide a minimum **right-of-way** of sixty feet for the construction of two 12-foot traffic lanes, two 8-foot parking lanes, and two 10-foot roadside strips.



Design roads with **gradients** less than twelve percent, even for short pitches. Design roads with **side-slope** or **out-slope** less than five percent. If road is to be used in winter, side-slope should not exceed two percent. Design **cul-de-sacs** to allow fire trucks to turn around without having to back up. Forty-five feet is a minimum radius for firefighting equipment. Do not build dead-end streets. Construct **bridges** to support a gross vehicle weight of 36,000 pounds to accomodate heavy firefighting equipment. Install street and **road signs** at all intersections. **House or lot numbers** should be plainly visible from the road. With only a block and lot number, firefighters may waste valuable time trying to find the right address.

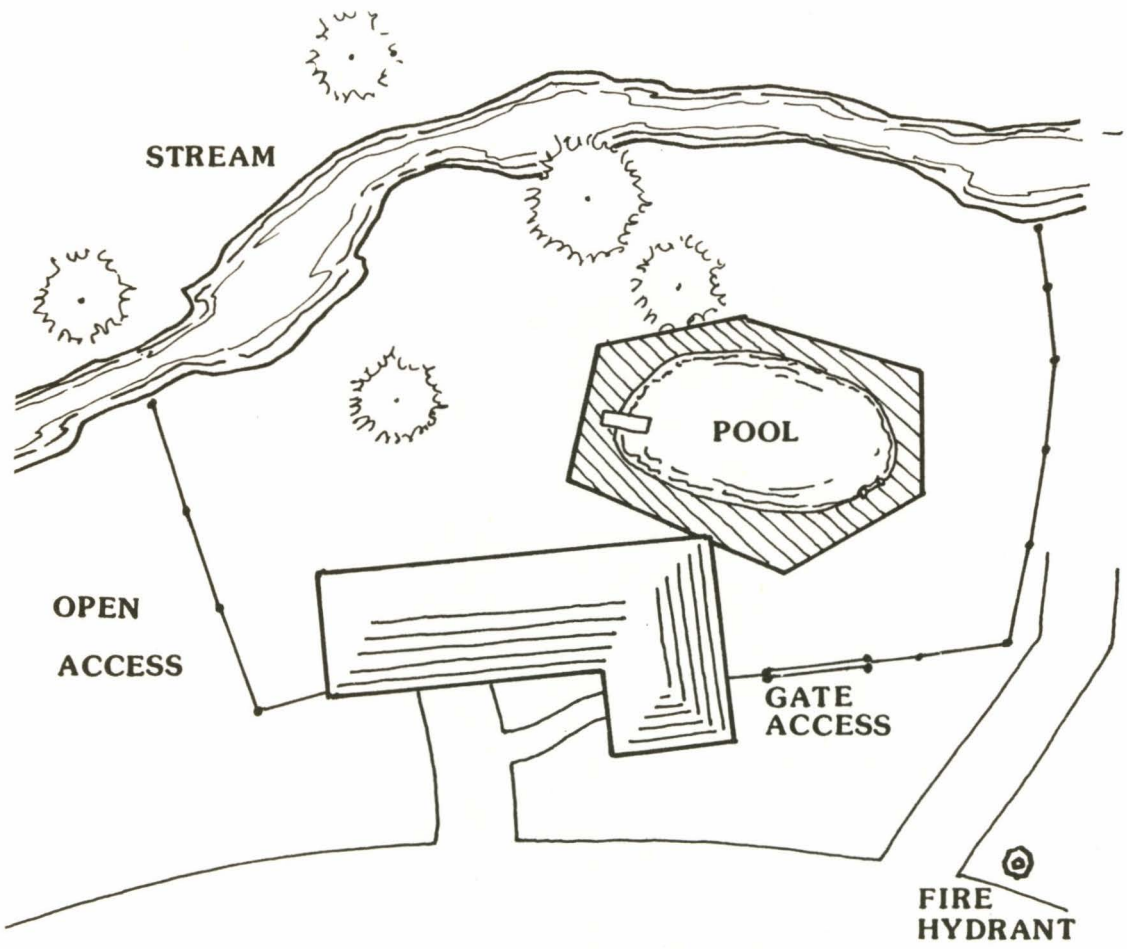




WATER

Provide **fire hydrants** that meet size, type, and location specifications of the local fire authority as well as state and county regulations. Provide water source or storage capacity to support required firefighting flow for a period of at least two hours in addition to maximum daily flow requirements for other consumer uses.

Plan **access** for fire trucks to **lakes, ponds, streams, swimming pools**, and other water sources. The trucks must be able to get within sixteen feet of these water sources to draft water into their tanks. Note water drafting sources on all plans. If a hydrant system is not provided, provide metal or concrete water cisterns at strategic locations with a minimum capacity of 100 gallons per acre protected or 500 gallons per dwelling unit.



EMERGENCY WATER SUPPLIES

SOLID WASTE DISPOSAL

One of the major fire hazards in rural developments is solid waste. This ranges from flammable debris accumulations from site improvement and building construction to everyday acculation by residents living in the development. Dispose of all debris from construction and right-of-way work before final approval of subdivision road systems. Identify and reserve future disposal sites depending on size and density of development. Extend commercial waste collection to include all development.

FIRE PROTECTION ORGANIZATION

Include protection specialists from local fire services when identifying the level of protection necessary. If the development is to be located more than four miles from the nearest fire station, consider **dedicating land** suitable for fire department stations or substations. If the proposed development adjoins an existing rural fire district, require **annexation** to that district as a condition of development approval. In low density developments, seek help from local fire services to organize a **volunteer fire protection** service. Support efforts to establish a tax-supported rural fire district as population density increases and sufficient tax base is established.

VI. FIRE RESISTANT PLANT SPECIES

The goal of FIRESAFE landscaping is to maintain an attractive landscape while reducing the fuels that would allow wildfire to spread to your house. Choice of plant species, spacing, and maintenance are crucial elements in any wildland design. There are no fireproof plant species, however some plants are much less likely to burn than others. In general, plants that are green and well irrigated burn slowly when ignited. The following recommendations include various species and how they can be used to improve FIRE SAFETY. This list should not be considered all-inclusive.

GROUND COVER

Replace bare spaces and weedy patches near your home with ground covers, including turf, perennial flower beds, vegetable gardens, fire resistant clump grasses, and mulches.

If irrigated, turf can provide an effective firebreak.

Herbaceous perennials and annuals also require irrigation. These species include low growing or spreading plants like seedums, sempervivum, potentilla, snow in summer, vinca, virginia creeper, wheat grass, rice grass, tall fescue, marigold, zienna, strawberries, clover, and others.

Plant perennial bunch grass, such as crested wheat grass, at least ten to twenty feet and as much as three hundred feet wide around the permimeter of your property to create a firebreak. Crested wheat grass is largely fire resistant and does not usually require irrigation. It will help suppress the growth of highly flammable annuals such as cheatgrass. Grass can be grazed or occasionally mowed to further reduce fuel accumulation.

Mulch helps control erosion, conserve moisture, and reduce weed growth. It can be organic, such as straw, compost, leaf mold, bark chips, shredded leaves, or lawn clippings; or it can be inorganic, including plastic materials, gravel, rock, and decomposed granite. Avoid using pine bark and thick layers of pine needles; they tend to smoulder and are difficult to extinguish. Additional information on mulches is available from the Co-operative Extension Service.

PERENNIALS

Choose hardy perennial flowers that are adapted to the climate. These green, leafy, succulent plants are harder to burn. Irrigation and regular weeding improves the fire resistance of yarrow, flax, columbine, pennstemon, low sage, shasta daisy, pinks, sulferflower, giallardia, daylilly, candytuft, iris, lupine, primrose, poppy, dusty miller, lambs ears, and others.

SHRUBS

Some deciduous shrubs can be used in foundation plantings if maintained, watered, and well spaced. Evergreens such as dwarf conifers and junipers tend to ignite easily; avoid them unless well-spaced. Place them at least twenty feet from any structure and prune regularly.

If maintained, hedge rows can deflect wind and filter wind-blown embers. Plant continuous deciduous hedges at least thirty feet from your home only if you will irrigate and remove dead branches regularly. Fire resistant shrubs include bush cherries, hedging roses, bush honeysuckles, currant, cotoneaster, sumac, tamarisk lilac, shrub apples, and buffalo berry.

TREES

Deciduous trees can be clumped, scattered, or planted in green belts or windbreak patterns. Evergreen trees tend to ignite easily and should be avoided unless well spaced.

Selection of trees is not as important as placement. Inside the yard, space trees at least thirty feet apart and prune to a height of eight to ten feet. Crowns should not touch and branches should not overhang your house. Reduce combustible material under and between trees. Large areas or difficult sites may require professional assistance.

A well designed deciduous windbreak can slow or even stop a fire before it reaches structures. Plant windbreak trees no more than ten feet apart and at least five times the mature tree height from the area to be protected, or one hundred feet. Plant on flat areas or at the base of slopes. Fast growing trees require frequent irrigation to keep them healthy. Maples, poplars, willows, aspen, and birch all require moist root zones to remain fire resistant.

ADDITIONAL ASSISTANCE

Additional information on the use and care of plants is available from the Co-operative Extension Service, Soil Conservation Service, Nevada State Nursery, and local nursery and landscape professionals.

VII. AGENCIES CAN HELP

A number of state, federal, and local agencies can help you make your house and landscape as FIRESAFE as possible. In addition to the agencies listed below, information is available from National Fire Protection Association publications, county extension agents, state and local building inspectors, and local building contractors.

EMERGENCY ASSISTANCE

If you spot a fire, **call the fire department immediately.** Do not assume that someone else has already called. Identify the exact location of the fire, speak slowly and clearly, and answer all questions.

PLANNING ASSISTANCE

For assistance in planning, contact the nearest fire station or one of the following SIERRA FRONT WILDFIRE COOPERATORS:

FOREST SERVICE

Toiyabe National Forest
1200 Franklin Way
Sparks, NV 89431
(702) 331-6444

Lake Tahoe Basin Management Unit
P.O. Box 731002
S. Lake Tahoe, CA 95731
(916) 573-2600

Tahoe National Forest
Hwy 49 & Coyote St.
Nevada City, CA 95959
[redacted] 916-265-4531

STATE

Nevada Division of Forestry
123 W. Nye Lane
Carson City, NV 89710
(702) 687-4350

BUREAU OF LAND MANAGEMENT

Carson District BLM
1101 Beverly Drive
Carson City, NV 89701
(702) 882-4200

Bakersfield District BLM
800 Truxtun Ave.
Bakersfield, CA 93305
(805) 861-4251

LOCAL

Truckee Meadows Fire Protection District
1001 E. 9th St.
P.O. Box 11130
Reno, NV 89520
(702) 328-3650

Carson City Fire Department
111 N. Curry
Carson City, NV 89701
(702) 887-2210

Tahoe-Douglas Fire Protection District
P.O. Box 919
Zephyr Cove, NV 89448
(702) 588-3591

N. Lake Tahoe Fire Protection District
P.O. Box 385
Crystal Bay, NV 89402
(702) 831-0351

East Fork Fire Protection District
P.O. Box 218
Minden, NV 89423
(702) 782-9040

Sparks Fire Department
1605 B Street
Sparks, NV 89431
(702) 356-2261

Reno Fire Department
200 Evans Avenue
Reno, NV 89501
(702) 334-2323

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